

AMENDMENTS TO THE CLAIMS

1. (Previously presented) A printed circuit board, comprising:
a base substrate; and
an external interconnection terminal provided on said base substrate,
said external interconnection terminal comprising a land formed on a front surface of said base substrate and a metal plate soldered upon said land via a solder layer,
a through-hole being formed in said base substrate such that said through-hole penetrates through said land and through said base substrate,
said through-hole being filled with a solder such that said solder in said through-hole extends in continuation to said solder layer connecting said metal plate to said land,
wherein said through-hole is provided in plural numbers in each land and said solder layer is formed over said plural numbers of through-holes.
2. (Original) The printed circuit board as claimed in claim 1, wherein said base substrate carries a second land on a rear surface thereof so as to oppose to said land on said front surface, said land on said front surface and said second land on said rear surface being connected with each other by said solder filling said through-hole.
3. (Canceled)
4. (Original) The printed circuit board as claimed in claim 1, further comprising a solder resist layer on said front surface of said base substrate such that said solder resist layer covers a peripheral edge part of said land, said solder resist layer extending in continuation to a part of said front surface of said base substrate surrounding said land.

5. (Original) The printed circuit board as claimed in claim 1, further comprising a solder resist layer on said land in a part offset from a peripheral edge of said land.

6. (Previously presented) The printed circuit board as claimed in claim 5, wherein said solder resist layer forms a pattern dividing an area of said land connected to said metal plate by said solder layer into sub-regions.

7. (Original) The printed circuit board as claimed in claim 6, wherein said solder resist pattern extends to an outside of said land.

8. (Original) The printed circuit board as claimed in claim 4, wherein there is formed a solder resist pattern in a part of said land offset from said peripheral edge part, said solder resist pattern and said solder resist layer dividing an area of said land soldered to said metal plate by said solder layer into sub-regions.

9. (Original) The printed circuit board as claimed in claim 1, wherein said solder resist layer is used also for covering an interconnection pattern formed on said base substrate.

10. (Original) The printed circuit board as claimed in claim 1, wherein said metal plate has an area larger than an area of said land, said metal plate being placed on said land so as to cover entirety of said land.

11. (Previously presented) A printed circuit board comprising:
a base substrate; and

an external interconnection terminal provided on said base substrate,
said external interconnection terminal comprising a land formed on a surface of said base substrate and a metal plate soldered upon said land via a solder layer, said solder layer being formed over a plurality of through-holes in each said land,
wherein there is provided a solder resist layer covering a peripheral edge part of said land such that said solder resist layer extends in continuation to a part of said surface of said base substrate surrounding said land.

12. (Original) The printed circuit board as claimed in claim 11, further comprising a solder resist pattern on an area of said land offset from said peripheral edge part.

13. (Original) The printed circuit board as claimed in claim 12, wherein said solder resist pattern divides an area of said land soldered to said metal plate by said solder layer into plural sub-regions.

14. (Original) The printed circuit board as claimed in claim 12, wherein said solder resist layer and said solder resist pattern divide an area of said land soldered to said metal plate by said solder layer into plural sub-regions.

15. (Original) The printed circuit board as claimed in claim 11, wherein said solder resist layer is used also for covering an interconnection pattern formed on said base substrate.

16. (Original) The printed circuit board as claimed in claim 11, wherein said metal plate has an area larger than an area of said land, said metal plate being placed on said land so as to cover entirety of said land.

17. (Currently amended) A printed circuit assembly, comprising:
an electronic component; and
a printed circuit board comprising a printed circuit substrate, the [[a]] printed circuit substrate further comprising:
a base substrate; and
an external interconnection terminal provided on said base substrate, said external interconnection terminal comprising a land formed on a front surface of said base substrate and a metal plate soldered upon said land via a solder layer, a through-hole being formed in said base substrate being such that said through-hole penetrates through said land and through said base substrate, said through-hole being filled with a solder such that said solder in said through-hole extends in continuation to said solder layer connecting said metal plate to said land;~~and~~
~~an electronic component mounted on a printed circuit board, the printed circuit board comprising the printed circuit substrate,~~
wherein the electronic component is mounted on the printed circuit board, and
wherein said through-hole is provided in plural numbers in each land and said solder layer is formed over said plural numbers of through-holes.

18. (Previously presented) A printed circuit assembly, comprising:

a printed circuit board comprising: a base substrate; and an external interconnection terminal provided on said base substrate, said external interconnection terminal comprising a land formed on a surface of said base substrate and a metal plate soldered upon said land via a solder layer, wherein there is provided a solder resist layer covering a peripheral edge part of said land such that said solder resist layer extends in continuation to a part of said surface of said base substrate surrounding said land, and said solder layer being formed over a plurality of through-holes in each said land; and
an electronic component mounted on said printed circuit board.

19. (Previously presented) An electronic apparatus, comprising:

a printed circuit substrate comprising: a base substrate; and an external interconnection terminal provided on said base substrate, said external interconnection terminal comprising a land formed on a front surface of said base substrate and a metal plate soldered upon said land via a solder layer, a through-hole being formed in said base substrate being such that said through-hole penetrates through said land and through said base substrate, said through-hole being filled with a solder such that said solder in said through-hole extends in continuation to said solder layer connecting said metal plate to said land;

an electronic component mounted on said printed circuit board; and

an electronic device having a metal plate terminal, said electronic device being connected to said printed circuit board by connecting said metal plate terminal to said metal plate of said external interconnection terminal by way of spot welding, wherein said through-hole is provided in plural numbers in each land and said solder layer is formed over said plural numbers of through-holes.

20. (Original) The electronic apparatus as claimed in claim 19, wherein said metal plate terminal of said electronic device and said metal plate of said external interconnection terminal comprises any of nickel or a nickel alloy.

21. (Original) An electronic apparatus as claimed in claim 19, wherein said electronic apparatus comprises a secondary battery pack including therein a secondary battery as said electronic device, said printed circuit board carrying a charging control circuit of said secondary battery as said electronic component.

22. (Previously presented) An electronic apparatus, comprising:
a printed circuit board comprising: a base substrate; and an external interconnection terminal provided on said base substrate, said external interconnection terminal comprising a land formed on a surface of said base substrate and a metal plate soldered upon said land via a solder layer, wherein there is provided a solder resist layer covering a peripheral edge part of said land such that said solder resist layer extends in continuation to a part of said surface of said base substrate surrounding said land, and said solder layer being formed over a plurality of through-holes in each said land;
an electronic component mounted on said printed circuit board; and
an electronic device having a metal plate terminal, said electronic device being connected to said printed circuit board by connecting said metal plate terminal to said metal plate of said external interconnection terminal by way of spot welding.

23. (Original) The electronic apparatus as claimed in claim 22, wherein said metal plate terminal of said electronic device and said metal plate of said external interconnection terminal comprises any of nickel or a nickel alloy.

24. (Original) An electronic apparatus as claimed in claim 22, wherein said electronic apparatus comprises a secondary battery pack including therein a secondary battery as said electronic device, said printed circuit board carrying a charging control circuit of said secondary battery as said electronic component.

25. (New) A printed circuit board, comprising:
a base substrate, said base substrate being a multilayer interconnection substrate having internal circuit patterns embedded inside said base substrate; and
an external interconnection terminal provided on said base substrate, said external interconnection terminal further comprising:
a land formed on a front surface of said base substrate;
a solder resist layer on said front surface of said base substrate such that said solder resist layer covers a peripheral edge part of said land, said solder resist layer extending in continuation to a part of said front surface of said base substrate surrounding said land; and
a metal plate soldered upon said land via a solder layer,
wherein a through-hole is formed in said base substrate such that said through-hole penetrates through said land and through said base substrate, said through-hole being provided with conductive plating at an inner wall surface thereof and being filled with a solder such that said solder in said through-hole extends in continuation to said solder layer connecting said metal plate to said land,

wherein said solder resist layer forms a solder resist pattern dividing an area of said land into substantially equal sub-regions, and

wherein said through-hole is provided in plural numbers in each land and said solder layer is formed over said plural numbers of through-holes, and said through-holes providing electrical interconnection between said internal circuit patterns and said land.

26. (New) The printed circuit board of claim 25, wherein said metal plate has an area larger than an area of said land so as to cover entirety of said land.

27. (New) A printed circuit board, comprising:

a base substrate; and

an external interconnection terminal provided on said base substrate, said external interconnection terminal further comprising:

a land formed on a front surface of said base substrate;

a solder resist layer on said front surface of said base substrate such that said solder resist layer covers a peripheral edge part of said land, said solder resist layer extending in continuation to a part of said front surface of said base substrate surrounding said land; and

a metal plate soldered upon said land via a solder layer.

28. (New) The printed circuit board of claim 27, wherein said metal plate has an area larger than an area of said land so as to cover entirety of said land.

29. (New) A printed circuit board, comprising:

a base substrate; and

an external interconnection terminal provided on said base substrate, said external interconnection terminal further comprising:

a land formed on a front surface of said base substrate;

a solder resist layer on said front surface of said base substrate such that said solder resist layer covers a peripheral edge part of said land, said solder resist layer extending in continuation to a part of said front surface of said base substrate surrounding said land; and

a metal plate soldered upon said land via a solder layer,

wherein said solder resist layer forms a solder resist pattern on said land, said solder resist pattern having a horizontal pattern part extending laterally and dividing an area of said land substantially symmetrically into upper and lower parts,

wherein a through-hole is formed in said base substrate such that said through-hole penetrates through said land and through said base substrate, said through-hole being provided with conductive plating at an inner wall surface thereof and being filled with a solder such that said solder in said through-hole extends in continuation to said solder layer connecting said metal plate to said land,

wherein said through-hole is provided in plural numbers in each land and said solder layer is formed over said plural numbers of through-holes, and

wherein said plural numbers of through-holes are disposed along an outside of said horizontal pattern.

30. (New) The printed circuit board of claim 29, wherein said base substrate carries a second land on a rear surface thereof so as to oppose to said land on said front surface, said land on said front surface and said second land on said rear surface being connected with each other by said solder filling said through-hole.

31. (New) A printed circuit board, comprising:

- a base substrate; and
- an external interconnection terminal provided on said base substrate, said external interconnection terminal further comprising:
 - a land formed on a front surface of said base substrate;
 - a solder resist layer on said front surface of said base substrate such that said solder resist layer covers a peripheral edge part of said land, said solder resist layer extending in continuation to a part of said front surface of said base substrate surrounding said land; and
 - a metal plate soldered upon said land via a solder layer,

wherein said solder resist layer forms a solder resist pattern on said land, said solder resist pattern having a shape and dividing majority of an area of said land substantially symmetrically into plural regions,

wherein a through-hole is formed in said base substrate such that said through-hole penetrates through said land and through said base substrate, said through-hole being provided with conductive plating at an inner wall surface thereof and being filled with a solder such that said solder in said through-hole extends in continuation to said solder layer connecting said metal plate to said land,

wherein said through-hole is provided in plural numbers in each land and said solder layer is formed over said plural numbers of through-holes, and

wherein said plural numbers of through-holes are disposed along inside of a part of said solder resist pattern.

32. (New) The printed circuit board of claim 31, wherein said shape of said solder resist pattern is an H-shape.

33. (New) The printed circuit board of claim 31, wherein said shape of said solder resist pattern is a T-shape.

34. (New) The printed circuit board of claim 31, wherein said part of said solder resist pattern is a vertical part.